

Academy of Aphasia 2011

## The Interaction among Figure, Ground and Axial Part in a Case of Broca's Aphasia

Elisa Zampieri<sup>a,\*</sup>, Ludovico Franco<sup>a</sup>, Ilaria Zannoni<sup>b</sup>, Francesca Meneghello<sup>c</sup><sup>a</sup> *Dipartimento di Studi Linguistici e Culturali Comparati, Università Ca' Foscari di Venezia*<sup>b</sup> *Centro Medico di Foniatria, Padova*<sup>c</sup> *IRCCS Ospedale San Camillo, Venezia*

### Introduction

In this work we deal with the syntax of Italian locative (and temporal) prepositions, drawing data from FM, a 54-year-old individual with Broca's aphasia with 13 years of education. In 2004, FM sustained a left-hemisphere stroke, following an internal carotid artery dissection. His non-fluent production shows phonological and semantic paraphasias, omissions of functional words and great difficulties with verb inflections and syntactically complex structures. His comprehension is relatively preserved. Previous neuroimaging studies (e.g. Noordzij *et al.*, 2008) have shown that processing of locative prepositions is associated with cerebral activity in the supramarginal gyrus located in the left parietal lobe.

### Linguistic Background

Svenonius (2006) argues that locative prepositions seem to form part of a separate syntactic category, which is distinct from both nouns and prepositions. He calls this class "Axial Part" (AxPart). The semantic function of AxPart, drawn from Talmy's (2000) descriptive insights, is to identify the position of an object, the Figure, by selecting a region (*the front, back, bottom, etc.*) of a second object, the Ground. What is crucial is that AxPart *links* the Figure to the Ground. In Italian, items which correspond to AxPart can convey locative/temporal meaning, and are often followed by functional prepositions such as *a* ('at/to') and *di* ('of') (e.g. *dietro (al)l'albero*, '(lit.) behind (to) the tree').

### Methods and Results

FM was assigned a repetition task of 82 clauses containing two nominal elements (Figure and Ground) correlated [JOINED?] by a complex preposition (the nexus [AxPart+functional preposition]; e.g. *L'albero [accanto alla] casa*, '(lit.) the tree [beside to] the house'). FM managed to repeat correctly only 4.8% of items, and his most frequent errors were the omission of the Figure, repeating AxPart+Ground (28%), or the omission of the AxPart (36.5%) managing to produce Figure and Ground. We detected other errors (19.51%) (e.g. repetition of only Ground or Figure; insertion of the copula). Crucially, in FM's production, Figure and AxPart never co-occur. We also detected errors (10.9%) involving phonology and substitution or omission of other morphemes (e.g. articles).

### Discussion

---

\* Corresponding author.

E-mail address: [zampy81@yahoo.it](mailto:zampy81@yahoo.it).

In FM's production, the (locative/temporal) construction Figure+AxPart+Ground seems to be unsettled. In particular, we have found a dissociation between Figure and AxPart. The simple preposition seems to be unaffected, though it is commonly considered the *most* functional one. We propose that, AxPart and Ground being in a local head-complement relation, if AxPart is recovered, it is also allowed to license a Ground complement. Moreover, constituting a spatial/temporal portion of the Ground, AxPart is also semantically linked to it, whereas the same local relation does not hold between AxPart and Figure. Thus, when Figure is retrieved, AxPart does not resurface in FM production, and Ground is licensed via a case-assigning functional preposition.

## References

- Noordzij, M.L., Neggers, S.F.W., Ramsey, N.F., & Postma, A. (2008). Neural correlates of locative prepositions. *Neuropsychologia*, 46(5), 1576-1580.
- Svenonius, P. (2006). The emergence of axial parts. *Nordlyd*, 33(1), 1-22.
- Talmy, L. (2000). *Toward a Cognitive Semantics*. Cambridge, MA: MIT Press.